

Upper Colorado River Endangered Fish Recovery Program

Nonnative Fish Management

Questions and Answers (General)

What is the Upper Colorado River Endangered Fish Recovery Program?

Established in 1988, the Recovery Program is a voluntary, cooperative partnership involving state and federal agencies, environmental groups and water and power user organizations in Colorado, Utah and Wyoming. Its purpose is to recover the endangered humpback chub (*Gila cypha*), bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), and razorback sucker (*Xyrauchen texanus*) while water development proceeds in accordance with federal and state laws and interstate compacts.

How will recovery of the endangered fishes affect present and future water development?

Progress toward recovery of the endangered fishes enables use and development of water from the Upper Colorado River Basin to proceed in compliance with the Endangered Species Act (ESA). Since 1988, recovery actions implemented by the Recovery Program have provided ESA compliance for 707 water projects depleting approximately 1,719,273 acre-feet of water in the Upper Basin. Recovery actions such as flow management, habitat restoration, nonnative fish management and stocking endangered fishes are the measures the U.S. Fish and Wildlife Service uses to determine if progress toward recovery of the endangered fish is sufficient to allow the Recovery Program to continue to provide ESA compliance for water use and development.

Why should anyone care about saving the endangered fishes?

These “big-river” fishes evolved 3-5 million years ago and are found in the Colorado River Basin and nowhere else in the world. They are part of our cultural heritage and southwestern lore and were once so abundant that American Indians and early settlers relied on them for food.

Scientific research has shown that losing one species in an ecosystem can cause a chain reaction affecting a series of other living things. Because the endangered Colorado River fishes have evolved over millions of years and survived significant changes in the river system, biologists consider them “indicator species.” Like the coal-miner’s canary, whose death forewarns workers of toxic gases underground, the decline of these fish species may be a warning that other native species of the Colorado River ecosystem also are at risk.

Why should anyone care about saving the endangered fishes? (continued)

An endangered species is one that is “in danger” of extinction throughout all, or a large portion of, its habitat. Because these fishes are so rare, they are protected by state laws and the federal Endangered Species Act (ESA). In passing the ESA, Congress reflected society’s belief that rare species should be saved whenever possible.

Why are these fish species endangered?

Numerous changes in the river environment since the early 1900s affected certain native plants and animals. Among those changes, the installation of dams, removal of water for human use, and introduction of nonnative sport fishes like northern pike, bass, and catfish have contributed to the decline of four native fish species.

What needs to be done to recover the endangered fishes?

The U.S. Fish and Wildlife Service has prepared recovery goals that identify site-specific management actions to minimize or remove threats and specify the numbers of fish required for self-sustaining populations. The recovery goals identify nonnative fishes in the Colorado River system as one of the major threats to the endangered fishes. The goals detail actions to minimize impacts from nonnative fishes including reducing their numbers through removal and relocation. In other cases, installing fish screens may be sufficient to prevent escapement of nonnative fishes from ponds and reservoirs into the river where they might interact with the endangered fishes.

Nonnative fish management is only one piece of the recovery puzzle. Recovery efforts are also underway to provide river flows, restore habitat, construct fish ladders, produce and stock endangered fish and monitor results.

Downlisting of the fishes from “endangered” to “threatened” and removing the species from Endangered Species Act protection (delisting) will be considered once the necessary management actions are achieved and the fish populations have met recovery goal criteria.

What are the nonnative fish species of primary concern?

Although there are more than 40 nonnative fish species in the Upper Colorado River Basin, northern pike (*Esox lucius*), channel catfish (*Ictalurus punctatus*) and smallmouth bass (*Micropterus dolomieu*) are the species considered to pose the greatest threat to the endangered fishes.

Why are these particular species targeted for research and removal?

The Colorado River system only has enough space and food to support a certain number of aquatic species. During the last century, the introduction of nonnative fishes, combined with changes in river habitat, has led to an imbalance in the river system, creating a situation where

Why are these particular species targeted? (continued)

the nonnative fishes are preying upon native fish and in some cases out-competing them for food and space. Native fish populations suffer as a result.

Biologists believe northern pike, channel catfish and smallmouth bass pose a significant threat to the endangered fishes. All three species are known to prey upon and eat fishes. Since introduction into the Colorado River Basin, their range has expanded to overlap with that of the endangered fishes, resulting in increased potential for negative interactions. These nonnative species are active predators and will consume relatively large prey, including endangered fishes.

The three target species have replaced Colorado pikeminnow as the top predator of the Upper Colorado River Basin and now dominate portions of the system. The abundance and range of these nonnative species continues to increase.

Other nonnative species are not included in this experiment because, for various reasons, biologists believe they pose less of a threat to endangered fishes than the targeted species. Some of the introduced nonnative species have not flourished in the system and are rarely encountered. Others may be common to abundant in localized habitats where they do not interact with the endangered fishes on a large scale.

Species that do not eat fish may compete for food and space with endangered fishes but do not prey upon them.

Some nonnative fish species are abundant and widespread, but only grow to two inches in length. Although they may feed on fish eggs and larvae, they are too small to eat the larger endangered fishes.

What is the Recovery Program doing to reduce the threat of nonnative fishes to the endangered fishes?

The Recovery Program will conduct an experimental nonnative fish management project to determine if populations of targeted nonnative fishes can be reduced to a level that will enable the endangered and other native fishes to coexist and thrive. Since 2000, biologists have transferred northern pike from the Yampa River to area fishing ponds as part of a study to determine if removing this top predator species would reduce the threat to endangered Colorado pikeminnow. Northern pike have also been actively removed from the Green River in Utah since 2000.

In 2003, biologists will begin to study channel catfish, smallmouth bass and northern pike in portions of the Yampa, Colorado, Green, White and Duchesne rivers in the states of Colorado and Utah. For the purpose of the study, each river will be divided into different sections. In the experimental **treatment** sections, targeted nonnative fish species will be removed. In the **control** sections, targeted nonnative fish species will be captured, marked or tagged and returned to the river.

What is the Recovery Program doing? (continued)

The Recovery Program is also working with the states of Colorado and Utah to control the release and escapement of nonnative fishes into the river system. For example, agreements have been signed between the U.S. Fish and Wildlife Service and the states of Colorado, Utah and Wyoming to review and regulate all stockings of fish within the Upper Colorado River Basin. This is necessary to stop the introduction of problematic nonnative fishes into habitats occupied by native endangered fishes.

How will the results be evaluated?

Follow-up sampling will determine if management efforts have reduced the numbers of nonnative fishes in sections where they were removed. Monitoring of endangered and other native fishes will determine if Recovery Program activities, which include nonnative fish management, result in increased numbers of endangered fishes. This information will help identify the level of management needed to minimize the threat of nonnative fishes to the endangered fishes to satisfy criteria necessary to recover these species. An annual assessment of data will determine future nonnative fish management actions.

What organizations will conduct the nonnative fish research and management activities on the ground?

Three of the Recovery Program partners – the states of Colorado and Utah and the U.S. Fish and Wildlife Service – will conduct nonnative fish research and management activities in the field. Biologists from Colorado State University will also participate.

When will work occur?

Beginning in 2003, work is planned to occur during the spring and summer for two to four years, depending on the section of river. Data will be evaluated and decisions made after each year to determine future work.

Where will work occur?

Work will occur in 438 miles of river in the Upper Colorado River Basin. Specific river reaches include the:

- \$ Yampa River from Hayden, Colorado, downstream to the Green River confluence in Dinosaur National Monument
- \$ Colorado River from the Gunnison River confluence (near Grand Junction, Colorado) downstream to the Utah state line
- \$ Green River from Split Mountain to Swaseys Beach (north of Green River, Utah)
- \$ White River starting near Rangely, Colorado, and ending downstream at the confluence with the Green River near Ouray, Utah
- \$ Duchesne River from Myton Diversion (between Duchesne and Roosevelt, Utah) to the Green River confluence

Where will work occur? (continued)

These sections of river were selected because they provide important habitat for the recovery of the endangered fishes.

What will happen to the nonnative fishes that are removed?

In some river sections, targeted nonnative fishes will be marked or tagged and returned to the river; in other sections they will be euthanized. Where practical and appropriate, the target species will be removed, marked or tagged and relocated to local ponds or reservoirs.

Will nonnative fish management reduce sportfishing opportunities in the Colorado River Basin?

The Recovery Program is working with the states of Colorado and Utah to support recreational angling by adhering to state management plans for the river system. Efforts will be made to implement management actions that will lessen the impact on sportfishing opportunities. In locations where nonnative fishes will be removed, efforts will be made wherever practical to relocate these fish to local ponds and reservoirs that are publicly accessible to anglers.

As part of the experimental approach, many targeted nonnative fish species will be captured, marked or tagged and returned to the river.

Other management actions are being taken to reduce the threat of nonnative fishes to endangered fishes while maintaining sportfishing. In 1999, the Recovery Program installed a fish screen at Highline Lake in western Colorado to prevent nonnative fishes stocked in the lake from escaping into the river where they might interact with endangered fishes. This allowed the state of Colorado to stock the lake with sportfish. Last year, a screen placed at the Ute Tribe's newly constructed Elders Pond in northeast Utah enabled the Tribe to stock the pond with sportfish.

In addition, the state of Colorado has removed bag/possession limits on northern pike, channel catfish and smallmouth bass in the entire Yampa River and in critical habitat in the Colorado, Gunnison and White rivers. Anglers should refer to state fish regulations for more information.

These types of innovative actions can help ensure that sportfishing opportunities are maintained in communities within the Upper Colorado River Basin, while reducing the potential for nonnative fishes to adversely affect native species.

Recovery and delisting of the endangered fishes may ultimately unencumber some level of sportfish management in these river basins, and some of these species may one day actually provide new fishing opportunities. Historically, early settlers eagerly fished for these species.

Why were nonnative fish species introduced into the Colorado River system?

Sixty-seven nonnative fish species have been introduced into the Colorado River Basin since the 1880s. At least 36 fish species, mostly game fishes from the eastern United States, were introduced between 1930 and 1950. Many of the species were intentionally introduced by state and federal agencies to address public demand for sportfishing opportunities during that time. Other nonnative species were introduced to provide food for the game species.

Unintentional introductions occurred when some species, which had been intentionally stocked in ponds and reservoirs for sportfishing, subsequently escaped into the river system. Some of these escapees successfully established self-sustaining populations in areas occupied by native fishes.

Why are some of the same agencies that introduced nonnative fishes to the river system now working to remove them?

Up until the mid-twentieth century the public's values and priorities did not emphasize preservation of native species and the environment. Over time, society's attitudes toward native species and their environments changed. In 1973, the Endangered Species Act (ESA) was signed into law. The ESA represents America's concern about the decline of many wildlife species around the world. Its purpose is to conserve and recover species and the ecosystems on which they depend.

Since passage of the ESA and other environmental laws, state and federal governments have responsibilities for both endangered species and sportfish management. The agencies are charged with addressing impacts of nonnative fishes on endangered fishes.

Will nonnative fish research and management benefit other native fish species?

Biologists believe that nonnative fish management will also benefit other native fish species such as the roundtail chub, bluehead sucker, flannelmouth sucker and speckled dace. Rapidly increasing numbers of nonnative fish currently dominate the Upper Colorado River system resulting in a decline of the native species. By working proactively to maintain balance in the river system, it is hoped that these native fish species will continue to thrive and not require state or federal protection as threatened or endangered.

Where can I get more information?

Upper Colorado River Endangered Fish Recovery Program

(Website: coloradoriverrecovery.fws.gov)

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Where can I get more information? (continued)

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